REMARKS

Claims 1 - 14 remain active in this application. The specification has been reviewed and minor editorial revisions made where seen to be appropriate. Claims 1 and 6 have been amended to improve form, descriptiveness and antecedent language correspondence. New claim 15 has been added to more fully recite the subject matter regarded as the invention. Support for new claim 15 appears throughout the application and particularly in Figures 1 and 2 and the description thereof at pages 9 - 11 and at page 15, lines 26- 29. No new matter has been introduced into the application.

The Examiner has objected to the drawings and the specification in regard to reference numerals 180, 185 and 190. This objection is respectfully traversed as being moot in view of the amendments to the specification made above and the proposed revisions to the drawings submitted concurrently herewith.

Specifically, reference numeral 180 is used in Figures 4 and 5 to indicate a modulator and the "device" illustrated in claim 5 is now identified by reference numeral 200 which has been inserted in the specification, as well. Reference numeral 185 has been added in the paragraph beginning at page 15, line 14. In regard to reference numeral 190 which the Examiner notes is applied twice in Figure 5, page 16, lines 3 - 4, notes that "Control from the network is schematically depicted by dashed arrows 190" and it is therefore respectfully submitted that such notation for both dashed arrows depicting arbitrary portions of a control signal path fully complies with the requirements of 37 C.F.R. §1.84 in all particulars. Therefore, it is respectfully submitted that, upon approval of the proposed drawing revisions, the drawings and specification will be in full compliance with all formal requirements and, accordingly,

reconsideration and withdrawal of these objections is respectfully requested.

The Examiner has further objected to the preface to the claims as being understood and therefore surplusage to be avoided. This objection is also respectfully traversed as being arbitrary and unsupported by any authority. Nevertheless, the passage has been revised to removed language in the first person and inconsistent with joint inventorship. Therefore, it is respectfully submitted that the required appropriate correction has been made and no basis for objection to this passage remains. Accordingly, reconsideration and withdrawal of this objection is respectfully requested.

Claims 1, 2, 6 - 10, 13 and 14 have been rejected under 35 U.S.C. §102 as being anticipated by Bolavage et al. Further, under 35 U.S.C. §103, claims 3 -5 have been rejected as unpatentable over Bolavage et al. in view of Welles, II; claim 11 has been rejected as being unpatentable over Bolavage et al. in view of Raliegh et al.; and claim 12 has been rejected as unpatentable over Bolavage et al. in view of Gamlyn et al. All of these grounds of rejection are respectfully traversed since Bolavage et al. does not, in fact, anticipate any claim in the application and additional prior art cited in regard to various perfecting features of the invention do not supplement Bolavage et al. at the basic points of deficiency thereof to answer the more basic and distinctive recitations of the claims.

Specifically, the invention is directed to the development of RFID-like functions using the infrastructure of a standard wireless data network and, in doing so, developing additional meritorious effects such as providing a fully open RFID in contrast to the closed nature of known RFID systems and providing additional functions and utilities with minimal additional hardware and/or software, such as condition

reporting and enhanced position determination. This meritorious function is achieved by using a standard data network infrastructure supporting wireless access points and providing for direct communication of RFID transponders and access points of the standard data network whereby access point data may be readily associated with identification data corresponding to respective transponders by the standard data network infrastructure. In summary, the invention provides:
1.) A new type of transponder that behaves in some ways like a wireless computing or communication device so that it will be recognized by an access point.
2. Creating an RFID system that uses standard access points to identify any assets that it can recognize, including the transponders mentioned above, as well as any existing wireless-enabled computing or communications device.

Even as a very superficial level, it is evident that Bolavage et al. has little, if any relevance, to the present invention for the simple reason that Bolavage et al. teaches a *connection* of an RFID system *to* a data network rather than an integrated system in which there is direct communication of the transponders and the data network access points. While Bolavage et al. might be considered to marginally address the problem of the closed nature of known RFID systems by providing a so-called "smart interrogator 22" which may operate on a plurality of frequencies or bandwidths to allow communications to and from transponders of different manufacturers, even Figure 1 clearly illustrates articulation of the overall system into an RF/ID Corporate Intranet, and internet or satellite link and one or more smart interrogators 22 each forming an essentially stand-alone RFID system but which, itself, is not and cannot function as a data network and, as such, requires connection thereto (thus precluding many of the advantages of the present

invention where direct communication is provided between the transponders and access points of a data network). See particularly column 5 of Bolavage et al. which describes smart interrogator 22 and the manner in which it is queried by agents 50 over an internet connection but does not appear to contain any suggestion of any network function of the smart interrogator 22, itself, and certainly such a network function is not inherent. That is, the purpose of the smart interrogator is to collect RFID information from standard RFID tags (albeit possibly from a plurality of manufacturers) and provide that information to users through the network. The purpose of an access point is to provide connectivity between wireless-equipped devices (such as wireless IP phones, laptop computers, PDA's, etc.) and the backend wired network (such as a business' LAN or the Internet).

Therefore, even through hindsight (which would be inappropriate in a rejection for anticipation in any case) the smart interrogator 22 cannot be considered as a wireless access point of a network, particularly since it cannot provide network connectivity to wireless-enabled computing and communication devices. For example, a laptop computer with an IEEE 802.11 wireless network card would not be able to access the Internet using a wireless connection to the smart interrogator 22, even if the smart interrogator were connected to the Internet. Further in this regard, the smart interrogator would not be able to detect the presence or identity of the laptop computer (or any other wireless network-enabled computing or communication device, including the transponder of claim 1) in the manner of an access point of a network. The frequency hopping techniques used in wireless data networks would require more than the smart interrogator's ability to broadcast an interrogation signal on multiple frequencies. It would require that

the frequencies be precisely synchronized. Current RFID tags only operate on a single frequency. Thus it is possible for the smart interrogator to broadcast on multiple frequencies, in the hopes that one will be correct. This technique will not work when the device employs frequency hopping (e.g. for association with an access point, as recited), since a precise series of different frequencies must be correct, at the correct time. Finally, even if the smart interrogator were able to broadcast a signal that was received by the wireless device, the wireless device would not respond to the smart interrogator, since wireless networks and RFID tags employ entirely different sets of protocols. In this regard, the Examiner's attention is respectfully called to the basic incompatibilities of RFID systems and wireless access points of networks on pages 3 - 4 of the present application.

The distinctive feature of direct communication of a transponder and a standard data network is explicitly recited in claim 1 (as filed) by the recitations of "means for associating said transponder with respective access points of a standard wireless data network" and "means for transmitting a signal that can be interpreted by an access point of said standard wireless data network as identification information" and, as now amended, "[transmitting a signal that can] be received by an access point of said standard wireless data network" and in claim 6 (as filed) by the recitations "a transponder detectable by said network, said transponder including means for transmitting identification information" (now supplemented by additional references to antecedent language) and "means for accessing and reporting internal network access point information in association with said identification information". None of these recitations are answered by Bolavage et al. for the simple reason that the smart interrogator and its communication links

to tags is not part of any network but only accessible by a network or a satellite link. Further, the statement of the rejection for anticipation does not address these recitations and thus fails to make a *prima facie* demonstration of any claim. Therefore, reconsideration and withdrawal of the rejection for anticipation by Bolavage et al. is respectfully requested.

As to perfecting features of the invention recited in some dependent claims, Bolavage et al. does not teach or suggest refinement of position location of an asset and, in this regard, suggests only the association of a smart interrogator 22 with a GPS system (column 5, lines 21 - 28) for obtaining position information, particularly since interrogator range is limited and location refinement is seemingly unnecessary. Further, while Bolavage et al. may suggest transmission of information other than identification information which may be modified, no teaching or suggestion is seen for remote control or condition sensing and reporting or expediting such reporting responsive to information change.

More specifically, as to claims 3 - 5, the Examiner relies on Welles, II, for teaching condition sensing. However, the basic object of Welles, II, is to establish a LAN of tracked assets, each having position determining capability and full data communications capability to serve as a master node of the LAN so that the LAN can be dynamically reconfigurable (and, hence, far more than a transponder with certain enhancements) but to conserve power by disabling the position locating arrangement of slave units and using only the position locating arrangement of the current master unit where the position of the slave units relative thereto is *a priori* known. Therefore, while Welles, II, may teach network transmission of condition data, it does not supplement

Bolavage et al. in regard to the deficiencies thereof discussed above and further, does not teach or suggest sensing and transmitting condition information in the context of a transponder or any position location of slave units since such information is considered to be *a priori* known.

Similarly in regard to claims 11 and 12, while Raliegh et al. and Gamlyn et al. quadratic optimization and the use of a neural network, respectively, they do not teach or suggest the use of these techniques for position location refinement and, particularly, do not do so in or as an incident of data network communications. Specifically, Raleigh et al. is directed to developing a phased array transmission pattern without prior knowledge of array geometry or mobile feedback. Therefore, any relevance to position location enhancement is tenuous, at best, and it does not appear that any data network is involved or accommodated. Further, Raliegh et al. certainly does not supplement Bolavage et al. to answer the more basic claim recitations of direct communications of a transponder with a wireless access point of a standard data network. Gamlyn et al. is even more remote from the distinctive features of the invention since the neural network disclosed therein is used to enhance an electrocardiograph signal and is not concerned with position location at all. As explained in the passage of column 1 relied upon by the Examiner, the geometrical vectors referred to are n-dimensional vectors representing features of the electrocardiograph signal rather than vectors in real space and are compared with reference vectors to provide control of an alarm or recording device. Therefore, it is respectfully submitted that the Raliegh et al. and Gamlyn et al. references do not contain the teachings or suggestions which the Examiner attributes to them and do not answer the recitations in regard to which

they are applied by the Examiner or supplement Bolavage et al. at points of deficiency thereof to answer the claim recitations as discussed above.

Neither do these secondary references provide evidence of a level of ordinary skill in the art which would support the conclusions of obviousness which the Examiner has asserted since the applied prior art taken singly or in any combination does not lead to an expectation of success in achieving the meritorious effects of the invention in providing an open RFID system which numerous additional functional advantages and utilities (e.g. location of medical equipment not currently in use and the like as noted, for example, on pages 13 - 17 of the present specification with little, if any, additional hardware or software by the simple expedient of providing for direct communications between transponders and wireless access points of a standard data network. Therefore, it is respectfully submitted that the Examiner has not made and cannot make a *prima facie* demonstration of obviousness of any claim in the application based on any combination of the applied prior art. Accordingly, reconsideration and withdrawal of the various rejections under 35 U.S.C. §103 is respectfully requested.

Since all rejections, objections and requirements contained in the outstanding official action have been fully answered and shown to be in error and/or inapplicable to the present claims, it is respectfully submitted that reconsideration is now in order under the provisions of 37 C.F.R. §1.111(b) and such reconsideration is respectfully requested. Upon reconsideration, it is also respectfully submitted that this application is in condition for allowance and such action is therefore respectfully requested.

If an extension of time is required for this response to be considered as being timely filed, a conditional petition is hereby made for such extension

of time. Please charge any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 50-2041.

Respectfully submitted,

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APPENDIX

Page 3, line 15+:

It should also be recognized that while RFID systems and wireless portions of networks are similar enough in some ways to interfere with each other, the proprietary nature of the former and the intended function of the latter does not permit combined functions to be realized. For example, while a wireless portion of a network may have a rudimentary capability to track and/or switch the access point for communication with a particular terminal, it cannot generally report the location of the assets that such terminals or particular operators which particular terminals may represent, much less track assets represented by equipment connected to a given terminal which may communicate with a central server or other terminals through a wireless portion of a network. Conversely, RFID systems cannot provide data communications using standard wireless data networking protocols, such as IEEE 802.11. Special purpose transmitter/receiver devices, known as interrogators, are equipped to merely sense the proximity of identifiable tags or to engage in limited read/write data traffic with the tags using protocols that preclude the inclusion of other network-aware devices participating in the communication.

Page 11, line 10+:

In current wireless networks, data associating access [pointsw] points with particular devices is generally stored only on the access points themselves. In accordance with the present invention, network queries to the access points are used to create a general data store 100 of access point/wireless device associations and metrics, such as the strength of radio signals between access points and the devices. The

invention operates on this data by making it accessible to a client terminal 80 through a client interface 80'. This data is formatted and organized for display, preferably in accordance with specific client queries, by a geographic information system (GIS) resident on or downloadable from the server to the client terminal. Such systems are generally known for geolocation and map-following applications and can be readily adapted for any particular environment such as a building, a plurality of business sites, a map of a region and the like.

Page 13, line 25+:

This type of tag provides a function identical to known RFID systems such as inventory control and access authorization but through an open and expandable wireless network. However, different types of articles may be distinguished by the return signals and a description thereof and/or other pertinent information retrieved from look-up table 100. Additional functionality can be achieved through the GIS arrangement for reporting location and may be enhanced by fine-grained location detection arrangements as may be desired.

Page 15, line 14+:

Additional functionality and potential applications are available from the arrangement illustrated in Figure 5. This arrangement is similar to that of Figure 4 but additionally includes condition sensing (e.g. 185) and/or remote device control from the network. It is contemplated that this type of arrangement should be integrated with the associated device 200, such as portable telephone 70 configured to operate over a wireless network, using, for example, the voice-over-IP protocol. Thus usage or any other

detectable condition can be monitored directly and in substantially real-time. Transmission from modulator 180 can be initiated by interrogation signals from the network and/or upon change in any monitored condition. In the context of telephony, the bidirectional voice message can be recorded on the network or additional functions provided such as recording a message on the network for later transmission such as upon the occurrence of a busy signal or when it is desired to transmit a message at a particular time. The functionality of the arrangement of Figure 5 is also particularly useful in the context of a medical treatment environment since location reporting can be limited to assets which are not currently in use.

Page 16, line 36+:

In view of the foregoing, it is seen that the use of active or passive tags which are visible to a computer network having wireless links provides a substitute for RFID systems that overcomes the disadvantages of the closed nature of such systems and provide two primary functions of [generalo] <u>general</u> data networking and physical location sensing using the same infrastructure. Further, the system in accordance with the invention provides numerous additional and valuable functionalities well beyond those provided by RFID systems. The invention may be easily implemented with well-understood and reliable hardware from a mature technology and at little cost if a network supporting wireless links is already in place or otherwise needed for its usual functions.

Page 18, lines 1 - 3:

Having thus described [my] <u>the</u> invention, what [I claim] <u>is claimed</u> as new and [desire to secure] <u>desired to be secured</u> by Letters Patent is as follows:

Claims 1 and 6:

1. (Amended) A transponder including

means for associating said transponder with a device,

means for associating said transponder with respective access points of a standard wireless data network,

means for receiving an interrogation signal, and

means for transmitting a signal that can be received by an access point of said standard wireless data network and interpreted by an access point of said standard wireless data network as identification information.

6. (Amended) An asset tracking system including

a computer network supporting a plurality of wireless links from respective wireless access points of said computer network,

a transponder detectable by said wireless access points of said computer network, said transponder including means for transmitting identification information corresponding to said transponder, and

means for accessing and reporting internal network access point information in association with said identification information.

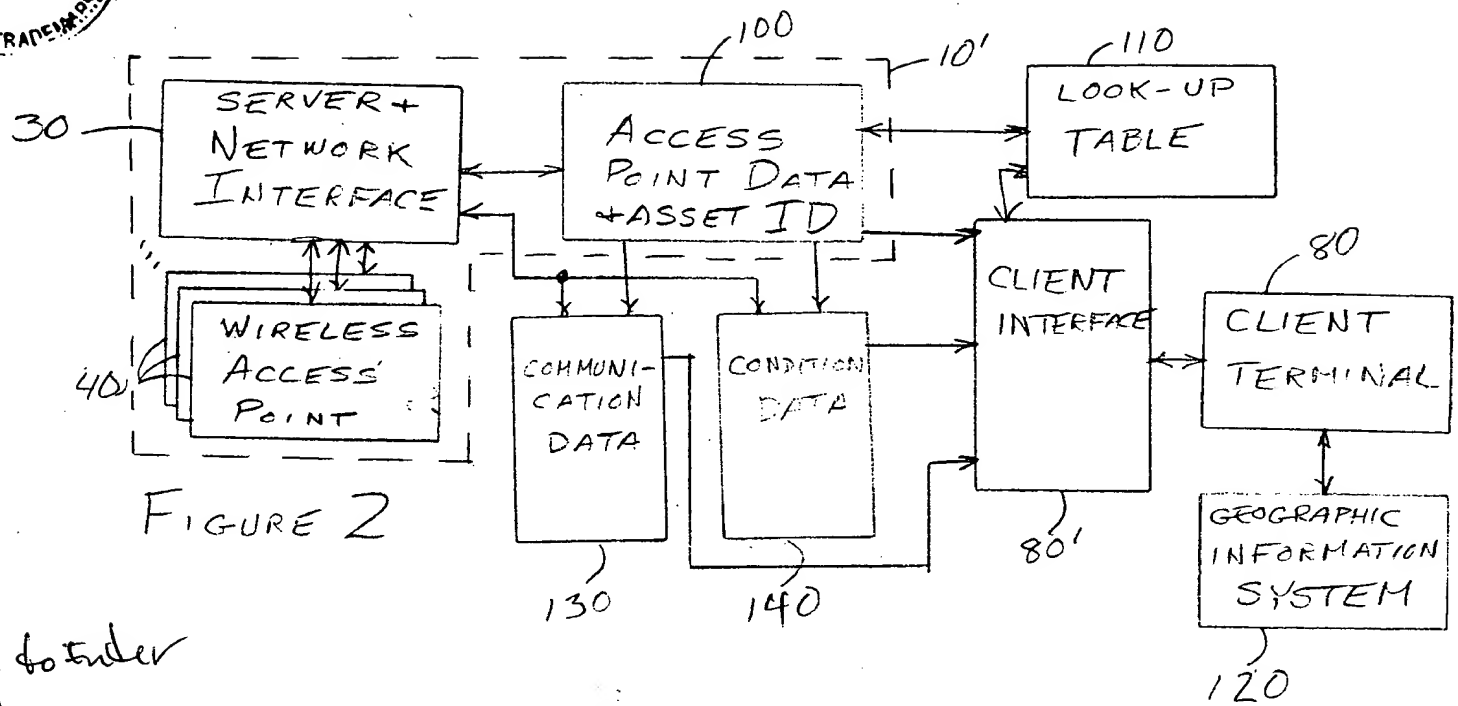

FIGURE 2

Ok to Enter
ND Nguyen
9/31/03

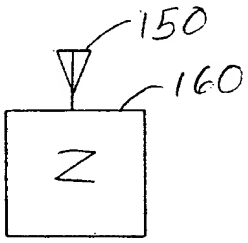

FIGURE 3

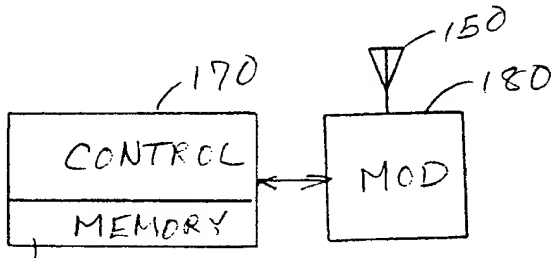

FIGURE 4

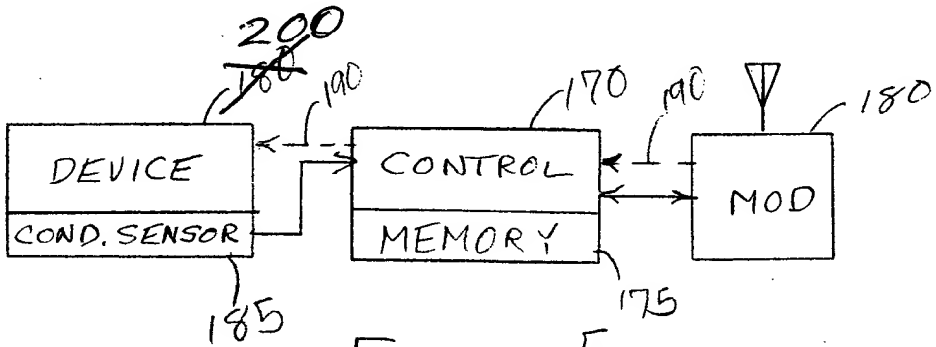

FIGURE 5